

CLAIMS:

1. A diametrically expandable coupling arrangement for coupling diametrically expandable first and second tubulars, the coupling arrangement comprising:

a male thread portion on an end portion of a first tubular; and

a female thread portion on an end portion of a second tubular,

the thread portions comprising dovetail threads having flanks inclined at an angle of greater than 10°.

2. The coupling arrangement of claim 1, wherein the coupling arrangement is adapted for expansion by a rotary expansion tool.

3. The coupling arrangement of claim 2, wherein the thread portions define a thread cut in an opposite direction to the intended direction of rotation of the rotary expansion tool.

4. The coupling arrangement of claim 1, wherein each thread portion has stab flanks and load flanks, and both the stab flanks and the load flanks of each respective thread portion are inclined at substantially the same angle.

5. The coupling arrangement of claim 1, wherein the flanks are inclined at an angle of greater than 15°.

6. The coupling arrangement of claim 1, wherein the flanks of the male thread portion are inclined at an angle of less than 80° to the male thread portion roots.

7. The coupling arrangement of claim 1, wherein the flanks of the male thread portion are inclined at an angle of less than 75° to the male thread portion roots.
8. The coupling arrangement of claim 1, wherein the flanks of the female thread portion are inclined at an angle of less than 80° to the female thread portion roots.
9. The coupling arrangement of claim 1, wherein the flanks of the female thread portion are inclined at an angle of less than 75° to the female thread portion roots.
10. The coupling arrangement of claim 1, wherein the thread portions are parallel.
11. The coupling arrangement of claim 1, wherein the thread portions are tapered.
12. The coupling arrangement of claim 1, wherein the thread portions are stepped.
13. The coupling arrangement of claim 1, wherein the first tubular has a leading end portion adapted to be radially constrained by the second tubular.
14. The coupling arrangement of claim 1, wherein the second tubular defines an undercut groove adapted to receive the leading end portion of the first tubular.
15. The coupling arrangement of claim 1, wherein the second tubular defines a groove adapted to receive the leading end of the first tubular, the groove extending axially and being dimensioned to accommodate relative axial extension of the first tubular.

16. The coupling arrangement of claim 15, wherein the groove accommodates a deformable seal.

17. The coupling arrangement of claim 16, wherein the deformable seal is of an elastomer, adapted to be energised by relative axial extension of the first tubular.

18. The coupling arrangement of claim 16, wherein the deformable seal comprises a material which swells when exposed to a selected material.

19. The coupling arrangement of claim 14, wherein the groove features a rounded recess angle.

20. The coupling arrangement of claim 1, wherein the first tubular comprises at least one sealing member for sealing engagement with an opposing surface of the second tubular.

21. The coupling arrangement of claim 20, wherein the at least one sealing member is arranged and located for sealing engagement with an opposing surface adjacent a free end of the second tubular.

22. The coupling arrangement of claim 21, wherein the at least one sealing member is arranged and located for sealing engagement with a surface spaced sufficiently from the free end of the second tubular to accommodate axial shrinkage of the tubular following expansion.

23. The coupling arrangement of claim 21, wherein the at least one sealing member is arranged and located such that the end effect of the free end of the second tubular following expansion serves to energise the sealing member.

24. The coupling arrangement of claim 20, wherein the sealing member comprises an elastomer.
25. The coupling arrangement of claim 20, wherein at least two axially spaced sealing members are provided.
26. The coupling arrangement of claim 20, wherein the at least one sealing member is located in a groove in the first tubular.
27. The coupling arrangement of claim 20, wherein the at least one sealing member comprises a material which swells when exposed to a selected material.
28. The coupling arrangement of claim 27, wherein the at least one sealing member comprises a swelling elastomer.
29. The coupling arrangement of claim 28, wherein two or more sealing members are provided and are adapted to swell in response to contact with different fluids.
30. The coupling arrangement of claim 1, wherein the free end of the first tubular arranged to permit axial movement of the free end relative to the second tubular.
31. The coupling arrangement of claim 1, wherein the material properties of the male and female threads are selected to facilitate engagement of the threads on the coupling being subject to rotary expansion.
32. The coupling arrangement of claim 1, wherein the thread portions are metallic.
33. The coupling arrangement of claim 1, wherein at least some of the crests of the threads are adapted to extend axially on expansion of the coupling.

34. The coupling arrangement of claim 1, wherein at least some of the crests of the threads comprise a relief.
35. The coupling arrangement of claim 1, wherein at least some of the roots of the threads comprise a spreader.
36. The coupling arrangement of claim 35, wherein the spreader comprises a rib.
37. A tubular comprising a male thread portion on an end thereof, the thread portion comprising dovetail threads having flanks inclined at an angle of greater than 10°.
38. A tubular comprising a female thread portion on an end thereof, the thread portion comprising dovetail threads having flanks inclined at an angle of greater than 10°.
39. A tubular string comprising first and second tubulars and comprising:
a male thread portion on an end portion of the first tubular; and
a female thread portion on an end portion of the second tubular,
the thread portions comprising dovetail threads having flanks inclined at an angle of greater than 10°.
40. A coupling arrangement for first and second tubulars comprising:
a male thread portion on an end portion of a first tubular; and
a female thread portion on an end portion of a second tubular,
wherein a free end of the first tubular is not threaded, to permit axial movement of the free end relative to the second tubular.

41. A method of expanding a threaded coupling comprising:
providing a coupling having a thread cut in one direction; and
passing a rotary expansion tool through the coupling while rotating the tool
in the other direction.
42. A diametrically expandable coupling arrangement for coupling
diametrically expandable first and second tubulars, the coupling arrangement
comprising:
a male thread portion on an end portion of a first tubular; and
a female thread portion on an end portion of a second tubular,
the thread portions comprising dovetail threads having at least some
crests adapted to extend axially on expansion of the coupling.
43. The coupling arrangement of claim 42, wherein at least some of the crests
of the threads comprise a relief.
44. The coupling arrangement of claim 42, wherein at least some of the roots
of the threads comprise a spreader.
45. The coupling arrangement of claim 44, wherein the spreader comprises a
rib.
46. A method of expanding a threaded coupling comprising:
providing a coupling having male and female thread portions, the thread
portions comprising dovetail threads having flanks inclined at an angle of greater
than 10°; and
passing a rotary expansion tool through the coupling.

47. An expandable coupling arrangement for first and second expandable tubulars, the coupling arrangement comprising:

a male thread portion on an end portion of a first tubular; and

a female thread portion on an end portion of a second tubular, the second tubular defining an undercut groove adapted to receive the leading end portion of the first tubular,

the thread portions comprising dovetail threads having flanks inclined at an angle of greater than 10° .